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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,410	04/07/2005	Nobuki Kitano	DK-US055065	5775

22919 7590 10/23/2006

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EXAMINER	
GLASS, ERICK DAVID	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/530,410	KITANO, NOBUKI	
	Examiner	Art Unit	
	Erick Glass	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-19 and 21-24* is/are rejected.

7)☐ Claim(s) *8,20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 1 and 11 are objected to because of the following informalities: Claim 1 and 11 are duplicates of each other. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-6, 9-11, 13-15, 17-18, and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirono et al (6,646,411) in view of Kiuchi et al (6,737,828).

With respect to claim 1, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); supplying the converted alternating current power source from the inverter to the motor (fig. 1,1); detecting (fig. 1, 29) at least one of an output voltage value and a command value of the inverter as a detection value (column 1, lines 50-52), and controlling (fig. 1, 24) at least one of voltage and current of the inverter based upon the detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 1, lines 57-58)

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 2, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); detecting (fig. 1, 29) at least one of an output voltage value and a command value of the inverter as a detection value (column 1, lines 50-52), and controlling (fig. 1, 24) at least one of voltage and current of the inverter based upon the detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 1, lines 57-58), taking precedence over suppression of the rotational speed variation (fig. 2a, s6).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 3, Hirono et al discloses the detection value is a peak value (column 8, line 36) of one of the output voltage value of the inverter and the command value.

With respect to claim 5, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); detecting a current (column 1, lines 50-52) of the inverter using current detection section (fig. 1, 29) as a current detection value, and controlling (fig. 1, 24) at least one of voltage and the current of the inverter based upon the current detection value so as not to exceed the current detection extent (column 1, lines 57-58).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 6, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); detecting a current (column 1, lines 50-52) of the inverter as a current detection value using a current detection section (fig. 1, 29) for driving the motor (fig. 1, 12), and controlling (fig. 1, 24) at least one of voltage and the current of the inverter based upon

the current detection value so as not to exceed the current detection extent (column 1, lines 57-58), for driving a motor.

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 9, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); detecting or estimating load (column 2, lines 1-2), and not suppressing rotational speed variations of the motor in correspondence with the load being smaller than a predetermined value (column 5, lines 20-27).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 10, Hirono et al does not teach wherein the load is detected or estimated by means of an average current. The examiner takes official notice that detecting an average current in place of an instantaneous current is know in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a circuit where the load is detected or estimated by means of an average current, thereby making the value more stable and not as prone to disturbances or fluctuations to produce a more stable system.

With respect to claim 11, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); detecting (fig. 1, 29) at least one of an output voltage value and a command value of the inverter as a detection value (column 1, lines 50-52), and controlling (fig. 1, 24) at least one of voltage and current of the inverter based upon the detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 1, lines 57-58).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 13, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); a detection section (fig. 1, 29) at least one of an output voltage value and a command value of the inverter as a detection value (column 1, lines 50-52), and an inverter control section (fig. 1, 24) for controlling at least one of voltage and current of the inverter based upon the detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 1, lines 57-58).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 14, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); a detection section (fig. 1, 29) at least one of an output voltage value and a command value of the inverter as a detection value (column 1, lines 50-52), and an inverter control section (fig. 1, 24) for controlling at least one of voltage and current of the inverter based upon the detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column

1, lines 57-58), taking precedence over suppression of rotational speed variations (fig. 2, s6).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 15, Hirono et al discloses the detection value is a peak value (column 8, line 36) of one of the output voltage value of the inverter and the command value.

With respect to claim 17, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); a current detection section (fig. 1, 29) for detecting the current of the inverter as a current detection value (column 1, lines 50-52), and an inverter control section (fig. 1, 24) for controlling at least one of voltage and the current of the inverter based upon the current detection value so as not to exceed a current detection extent (column 1, lines 57-58).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 18, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); a current detection section (fig. 1, 29) for detecting as a current detection value (column 1, lines 50-52) at least one of an input current and an output current of the inverter, for driving the motor(fig. 1, 12), and an inverter control section (fig. 1, 24) for controlling at least one of voltage and current of the inverter based upon the current detection value so as not to exceed a current detection extent (column 1, lines 57-58), for driving the motor.

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 21, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the

inverter (fig. 1,2); a load detection section (fig. 1, 26) for detecting or estimating load (column 2, lines 1-2), and an inverter control section (fig. 1, 24)not suppressing rotational speed variations of the motor in correspondence with the load being smaller than a predetermined value (column 5, lines 20-27).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 22, Hirono et al does not teach wherein the load is detected or estimated by means of an average current. The examiner takes official notice that detecting an average current in place of an instantaneous current is know in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a circuit where the load is detected or estimated by means of an average current, thereby making the value more stable and not as prone to disturbances or fluctuations to produce a more stable system.

With respect to claim 23, Hirono et al discloses converting the direct current power source (fig. 1,3) into a converted alternating current power source using the inverter (fig. 1,2); a detection section (fig. 1, 29) for detecting at least one of an output voltage value and a command value of the inverter as a detection value (column 1, lines

50-52), and an inverter control section (fig. 1, 24) for controlling at least one of voltage and current of the inverter based upon the current detection value so that one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 1, lines 57-58).

Hirono et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Hirono to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 24, Hirono et al discloses a direct current voltage control section (fig. 1, 24) for controlling the direct current voltage supplied to the inverter based upon the detection value.

Claims 4, 7, 12, 16, 19, are rejected under 35 U.S.C. 102(b) as being anticipated by Ochiai et al (US 6,422,331) in view Kiuchi et al (6,737,828).

With respect to claim 4, Ochiai et al discloses decreasing an amplitude of an output torque (column 3, lines 18-26) variation of the motor (fig. 1, 2), and controlling at least one of voltage and current of the inverter (fig. 1, 7) so that at least one of the output voltage value and the command value of the inverter does not exceed a predetermined value (column 2, lines 5-12).

Ochiai et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Ochiai to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 7, Ochiai et al discloses decreasing an amplitude of an output torque (column 3, lines 18-26) variation of the motor (fig. 1, 2), and controlling at least one of voltage and current of the inverter (fig. 1, 7) so as not exceed a current detection extent (column 2, lines 5-12).

Ochiai et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Ochiai to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 12, Ochiai et al discloses wherein the direct current voltage supplied (fig. 1, voltage supplied to 7) to the inverter (fig. 1, 7) is controlled based upon the detection value (column 5, lines 13-19).

With respect to claim 16, Ochiai et al discloses decreasing an amplitude of an output torque (column 3, lines 18-26) variation of the motor (fig. 1, 2), and an inverter control section (fig. 1, 5) for controlling at least one of voltage and current of the inverter (fig. 1, 7) so that one of output voltage value and the command value of the inverter does not exceed a predetermined value (column 2, lines 5-12).

Ochiai et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power source with converter into the motor control circuit of Ochiai to provide the advantage of create a stable DC bus, as taught by Kiuchi.

With respect to claim 19, Ochiai et al discloses a section (fig. 1, 5) for decreasing an amplitude of an output torque (column 3, lines 18-26) variation of the motor (fig. 1, 2), and inverter control system for controlling at least one of voltage and current of the inverter (fig. 1, 7) so as not exceed a current detection extent (column 2, lines 5-12).

Ochiai et al does not teach applying an alternating current power source to a converter to obtain a direct current power source.

Kiuchi et al teaches applying an alternating current power source (fig. 1, 1) to a converter (fig. 1, 2) to obtain a direct current power source. It would have been obvious to one having skill in the art at the time of the invention to implement a A/C power

source with converter into the motor control circuit of Ochiai to provide the advantage of create a stable DC bus, as taught by Kiuchi.

Double Patenting

Claims 1, and 11 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim of each other. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Response to Arguments

Applicant's arguments with respect to claims 1-3, 5-6, 9-11, 13-15, 17-18, and 21-24 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

Claims 8 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Glass whose telephone number is 571-272-8395. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 571-272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EG

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